

JOURNAL OF LOW TEMPERATURE PHYSICS

The *Journal of Low Temperature Physics* is an international medium for the publication of original papers on fundamental theoretical and experimental research in low temperature physics. Typical subject areas are:

- Properties of Fermi and Bose systems, especially in the condensed phases, and of the hydrogen and helium isotopes;
- Superfluidity and the properties of quantum fluids and solids;
- Properties of isotopic mixtures at low temperatures;
- Superconductivity;
- Phase transitions at low temperatures;
- Thermal properties, thermodynamics, and statistical mechanics of low temperature phenomena;
- Lattice dynamics, phonon phenomena, acoustic, mechanical, and optical properties of substances at low temperatures;
- Electronic properties of metals, semiconductors, and alloys including Fermi surfaces, oscillatory phenomena, magnetoelectrical effects, acoustic properties, and transport phenomena at low temperatures;
- Magnetism at low temperatures including paramagnetic, ferromagnetic, and antiferromagnetic properties and including the behavior of dilute alloys and nuclear spin systems;
- Surface phenomena at low temperatures.

Occasionally review articles will be included. No papers of a solely technical or applied nature will be accepted.

CO-EDITORS: John G. Daunt and John P. Harrison
Physics Department, Queen's University
Kingston, Ontario, Canada K7L 3N6

EDITORIAL BOARD AND POLICY COMMITTEE:

E. Alekseevskii (USSR)	W. E. Keller (USA)	R. L. Orbach (USA)
L. Andronikashvili (USSR)	I. Khalatnikov (USSR)	W. B. Pearson (Canada)
Bewilogua (GDR)	W-Y. Kuan (China)	R. S. Safrata (Czechoslovakia)
F. Brewer (UK)	C. G. Kuper (Israel)	E. J. Saur (West Germany)
Clarke (USA)	I. M. Lifshitz (USSR)	A. Schmid (West Germany)
Doniach (USA)	O. V. Lounasmaa (Finland)	L. Tewordt (West Germany)
S. Dugdale (UK)	K. Maki (USA)	M. Tinkham (USA)
J. Emery (USA)	S. Nakajima (Japan)	R. Tournier (France)
L. Fetter (USA)	L. H. Nosanow (USA)	J. C. Wheatley (USA)
V. N. Hardy (Canada)	T. Ohtsuka (Japan)	
C. Hohenberg (USA)	J. L. Olsen (Switzerland)	

Published monthly at Winterstoke Road, Bristol BS3 2NT, England, by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1982, Volumes 46, 47, 48, and 49 (6 issues each) will be published. Subscription orders should be addressed to the publisher. *Journal of Low Temperature Physics* is abstracted or indexed in Applied Mechanics Reviews, Chemical Abstracts, Chemical Titles, Current Contents, Energy Research Abstracts Engineering Index, INSPEC—Electrical and Electronics Abstracts and Physics Abstracts, Metals Abstracts Index, Referativnyi Zhurnal, Science Citation Index, Science Research Abstracts—Part A, and Solid State Abstracts Journal. © 1982 Plenum Publishing Corporation. *Journal of Low Temperature Physics* participates in the program of Copyright Clearance Center, Inc. The appearance of a code line at the bottom the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the stated per-copy fee through the Copyright Clearance Center, Inc. for all copying not explicitly permitted by Sections 7 or 108 of the U.S. Copyright Law. It does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts.

Subscription rates:

Volumes 46, 47, 48, and 49, 1982 (6 issues each) \$118.75 per volume (outside the U.S. \$133.75 per volume).

Second-class postage paid at Jamaica, N.Y. 11431. Postmaster: Send address changes to *Journal of Low Temperature Physics*, Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. Air freight and mailing in the USA by Publications Expediting, Inc., 0 Meacham Avenue, Elmont, N.Y. 11003.

Printed in Great Britain.

Journal of Low Temperature Physics is published monthly at Winterstoke Road, Bristol BS3 2NT, England, by Plenum Publishing Corporation, 233 Spring Street, New York, N.Y. 10013. In 1982, volumes 46, 47, 48, and 49 (6 issues each) will be published. Subscription orders should be addressed to the publisher. *Journal of Low Temperature Physics* is abstracted or indexed in Applied Mathematics Reviews, Chemical Abstracts, Chemical Titles, Current Contents, Energy Research Abstracts, Engineering Index, INSPEC—Electrical and Electronics Abstracts and Physics Abstracts, Metals Abstracts Index, Referativnyi Zhurnal, Science Citation Index, Science Research Abstracts—Part A, and Solid State Abstracts Journal. © 1982 Plenum Publishing Corporation. *Journal of Low Temperature Physics* participates in the program of Copyright Clearance Center, Inc. The appearance of a code line at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use. However, this consent is given on the condition that the copier pay the stated per-copy fee through the Copyright Clearance Center, Inc. for all copying not explicitly permitted by Section 107 or 108 of the U.S. Copyright Law. It does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale, nor to the reprinting of figures, tables, and text excerpts.

JOURNAL OF LOW TEMPERATURE PHYSICS

Vol. 47, Nos. 1/2

April 1982

CONTENTS

Superfluid Onset in ^4He Films Adsorbed on Pyrolytic Graphite <i>Junpei Yuyama</i>	1
Theory of the Stationary Macroscopic Quantum Behavior of Inductively Coupled Superconducting Weak Links <i>G. Brunk and H. Lübbig</i>	13
Effect of Mixed Valence Impurities on Superconductivity <i>P. Schlotmann</i>	27
Vacancies in a Quantum Crystal of Fermions. The Spin Polaron in Solid ^3He <i>G. Montambaux, M. Héritier, and P. Lederer</i>	39
Low-Temperature Thermodynamics of a One-Dimensional Interacting Fermi System <i>G. I. Japaridze and A. A. Nersesyan</i>	91
Calculation of the Total Pinning Force Without a Threshold Criterion <i>I. Kirschner and K. Martinás</i>	105
Surface Structure of High- T_c Nb_3Ge Films <i>S. Kuriki and T. Ohora</i>	111
Magnetic Susceptibility of Superconducting Granular Aluminum <i>M. Gershenson and W. L. McLean</i>	123
Nonlinear Motion of Magnetization in Superfluid $^3\text{He-B}$. The Leggett-Takagi Spin Relaxation Effect in the Pulsed NMR Configuration <i>Koutarou Ooiwa</i>	137
In the Critical Temperature of Anisotropic Superconductors <i>J. P. Carbotte and J. M. Daams</i>	157
Dependence of the Critical Parameters of Superconducting Molybdenum Chalcogenides on the Hexagonal Cell Volume <i>N. E. Alekseevskii, E. P. Khlybov, V. I. Novokshonov, V. V. Evdokimova, V. M. Kozintsev, and A. V. Mitin</i>	169
Low Temperature Specific Heats of $\text{H}(\text{NbIrO})$ and $\text{R}(\text{NbPtO})$ <i>B. Cort, A. L. Giorgi, and G. R. Stewart</i>	179
Platinum: Fermi-Surface Anisotropy in Potassium and the Effect of Hydrostatic Pressure <i>I. M. Templeton</i>	187

**JOURNAL OF
LOW TEMPERATURE PHYSICS**

Vol. 47, Nos. 3/4

May 1982

CONTENTS

Thermodynamics of the Liquid-Solid Interface in Dilute Solutions of ^3He in ^4He <i>B. Castaing, A. S. Greenberg, and M. Papoulier</i>	191
Propagation of Nonlinear Acoustic Waves in Gallium <i>V. D. Fil, A. L. Gaiduk, and V. I. Denisenko</i>	207
On the Nature of Inhomogeneous States in Superconducting Junctions <i>B. I. Ivlev and N. B. Kopnin</i>	223
Quantum Oscillations in Magnetoacoustic Attenuation of Degenerate Piezoelectric Semiconductors <i>Chhi-Chong Wu and Jensean Tsai</i>	233
Thermal Resistance of a Normal/Superconductor Interphase Boundary in High-Purity Lead <i>P. Bonnard, P. Laeng, J.-M. Suter, and L. Rinderer</i>	255
Sound and Transport Phenomena in Spin-Polarized ^3He - ^4He Solutions <i>A. E. Meyerovich</i>	271
Anomalous Temperature Dependence of D and T_2 for Dilute Solutions of ^3He in Solid ^4He <i>A. R. Allen, M. G. Richards, and J. Schratter</i>	289
A Model for the Solid ^3He Magnet? <i>R. A. Guyer and Pradeep Kumar</i>	321
Ultrasonic Attenuation in the Superconducting and Intermediate States of Pure and Doped Type I Superconductors <i>K. D. Chaudhuri and R. Singh</i>	329
Possibility of Higher Order Critical Fields in Superconducting Rings <i>J. Riess</i>	345
Third-Order Elastic Constants and the Low-Temperatures Limit of the Grüneisen Parameter of Mg_2Pb on Axe's Shell Models <i>V. Ramachandran and M. Md. Ibrahim</i>	351
High- T_c Superconducting Nb-Ga Wires Prepared by Heating and Quenching in Liquid Helium <i>T. Kawaguti and L. Rinderer</i>	353
An Alternative Analysis of the Nonlinear Equations of the Current-Driven Josephson Junction <i>J. R. Waldram and P. H. Wu</i>	363

JOURNAL OF LOW TEMPERATURE PHYSICS

Vol. 47, Nos. 5/6

June 1982

CONTENTS

Thalorimetric Studies of Low-Temperature Heat Capacity of KCl Crystals with Light Impurities <i>K. A. Kvavadze, L. A. Tarkhnishvili, M. M. Nadareishvili, and T. K. Nakhutsrishvili</i>	375
Analysis of a Double-Loop DC SQUID <i>Claudia D. Tesche</i>	385
Effect of Normal Impurities on Anisotropic Superconductors with Variable Density of States <i>M. D. Whitmore and J. P. Carbotte</i>	411
Thermoelectric Current in a Superconducting Circuit <i>V. L. Ginzburg, G. F. Zharkov, and A. A. Sobyanin</i>	427
Superconductivity, Structural Disorder, and Phase Transitions in Ion-Irradiated Nb ₃ Al Films <i>U. Schneider, G. Linker, and O. Meyer</i>	439
Specific Heat of Superconductor-Normal Metal Composites <i>L. F. Goodrich, J. D. Verhoeven, and D. K. Finnemore</i>	451
Radiation Damage of Al ₁₅ -Nb ₃ Si and Nb ₇ Si <i>Ernst L. Haase and Jiri Ruzicka</i>	461
Very Low-Temperature Search for Superconductivity in Semiconducting KTaO ₃ <i>J. R. Thompson, L. A. Boatner, and J. O. Thompson</i>	467
Copper Powder Nuclear Demagnetization—A Feasibility Study <i>R. C. M. Dow, A. M. Guenault, and G. R. Pickett</i>	477
Local Equilibrium at the Superfluid Film-Vapor Interface <i>K. L. Telschow and M. Z. Shoushtari</i>	491
Spectrum of Thermal Voltage Fluctuations in Current-Driven, Small Capacitance Josephson Junctions <i>Makoto R. Arai and Vinay Ambegaokar</i>	499
Electric Response Functions in the Problem of Longitudinal Collective Mode Excitation in Superconductors <i>E. V. Bezuglyi, E. N. Bratus, and V. P. Galaiko</i>	511
Data and Addenda: A Thermal Activation Model for Noise in the DC SQUID <i>Claudia D. Tesche</i>	545
Author Index to Volume 47	547
Subject Index to Volume 47	549

